

Ecosystem Amendment Preliminary Policies & Recommendations

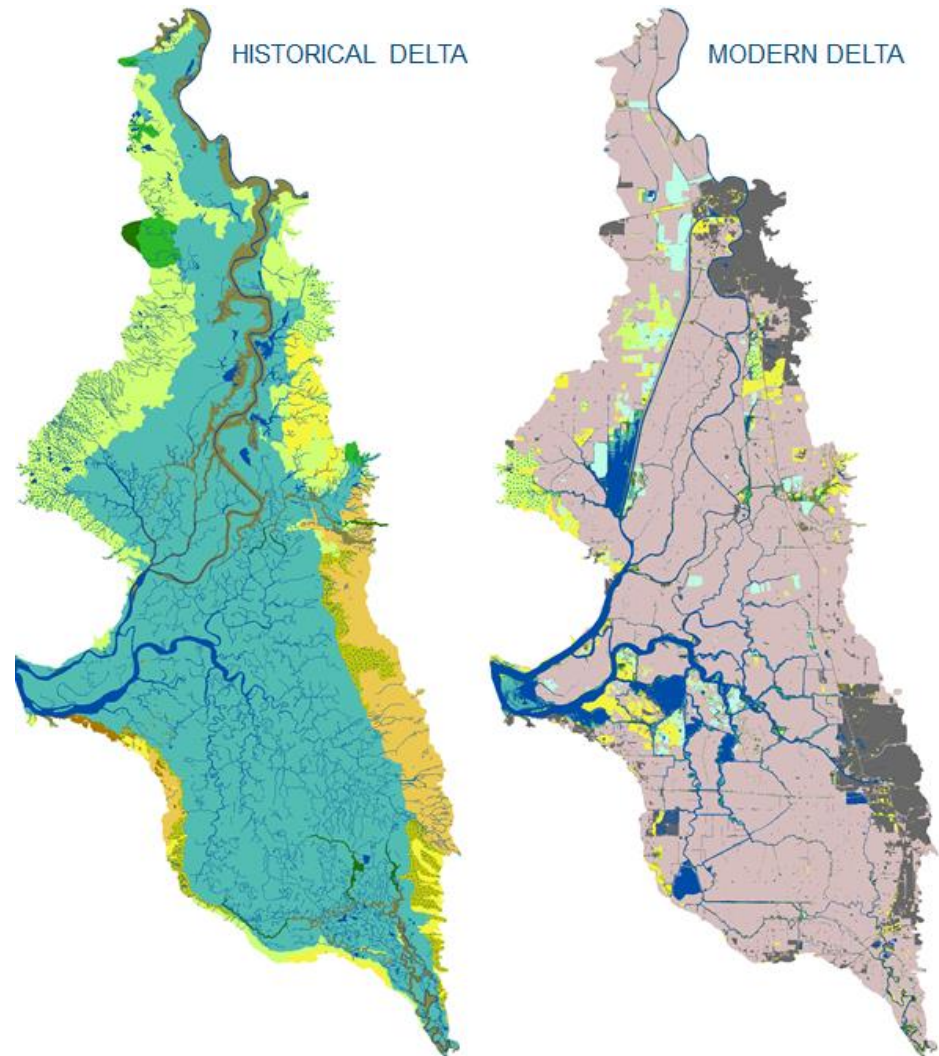
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April 25, 2019



Modern Delta is Heavily Altered

- Land conversion, channel simplification, subsidence
- Functions and connections between land and flows have been lost
 - Marsh wetlands = 98% loss
 - Dendritic channels = 93% loss
 - Seasonal flooded = 85% loss
 - Riparian = 60% loss
- Alterations have resulted in significant population declines of the Delta's native fish and wildlife and reduced landscape resilience sea level rise and a rapidly changing climate



Background

- Originally a highly productive riparian and wetland ecosystem at the confluence of the state's two largest rivers, the Delta ecosystem has been significantly degraded over the past 150 years by a number of factors including:
 - Draining the marshes through land reclamation programs to create agricultural islands
 - Dredging and straightening waterways to improve flood flow to the ocean
 - Armoring Delta levees with rocks to reduce risk of failure especially to subsided islands
 - Introducing non-native species for sport (i.e., striped bass) and by accident (i.e., Chinese mitten crabs)
 - Altering flow patterns and entraining fish at the State and federal water project pumps
 - Contaminating waterways from urban and agricultural runoff

Delta Reform Act

Coequal Goals (Water Code § 85054)

- Providing a more reliable water supply for California
- Protecting, restoring, and enhancing the Delta ecosystem
- In a manner that protects and enhances Delta as an evolving place

Restoration (Water Code § 85066)

“...the application of ecological principles to restore a degraded or fragmented ecosystem and return it to a condition in which its biological and structural components achieve a close approximation of its natural potential, taking into consideration the physical changes that have occurred in the past and the future impact of climate change and sea level rise”

Delta Reform Act

Target Characteristics for the Delta

- Viable populations of native resident and migratory species
- Functional corridors for migratory species
- Diverse and biologically appropriate habitats for ecosystem processes
- Reduced threats and stresses on the Delta Ecosystem
- Conditions conducive to meeting or exceeding recovery plans and salmon doubling goals

Strategies and Subgoals

- Restore large areas of interconnected habitats within the Delta and its watershed by 2100.
- Establish migratory corridors for fish, birds, and other ecosystems.
- Improve water quality for drinking, agriculture, and ecosystem.
- Restore habitat necessary to avoid a net loss of migratory bird habitat and, where feasible, increase migratory bird habitat to promote viable populations of migratory birds.

Delta Plan: Chapter 4 Vision

An aerial photograph of a river delta landscape. A winding river flows through lush green wetlands and forests. To the right, there are large rectangular agricultural fields, some of which are covered in a grid-like pattern, possibly for solar panels or a specific type of farming. The sky is hazy with soft clouds.

Delta Plan: Chapter 4 Vision

The Council envisions a future in which the Delta ecosystem has the following characteristics:

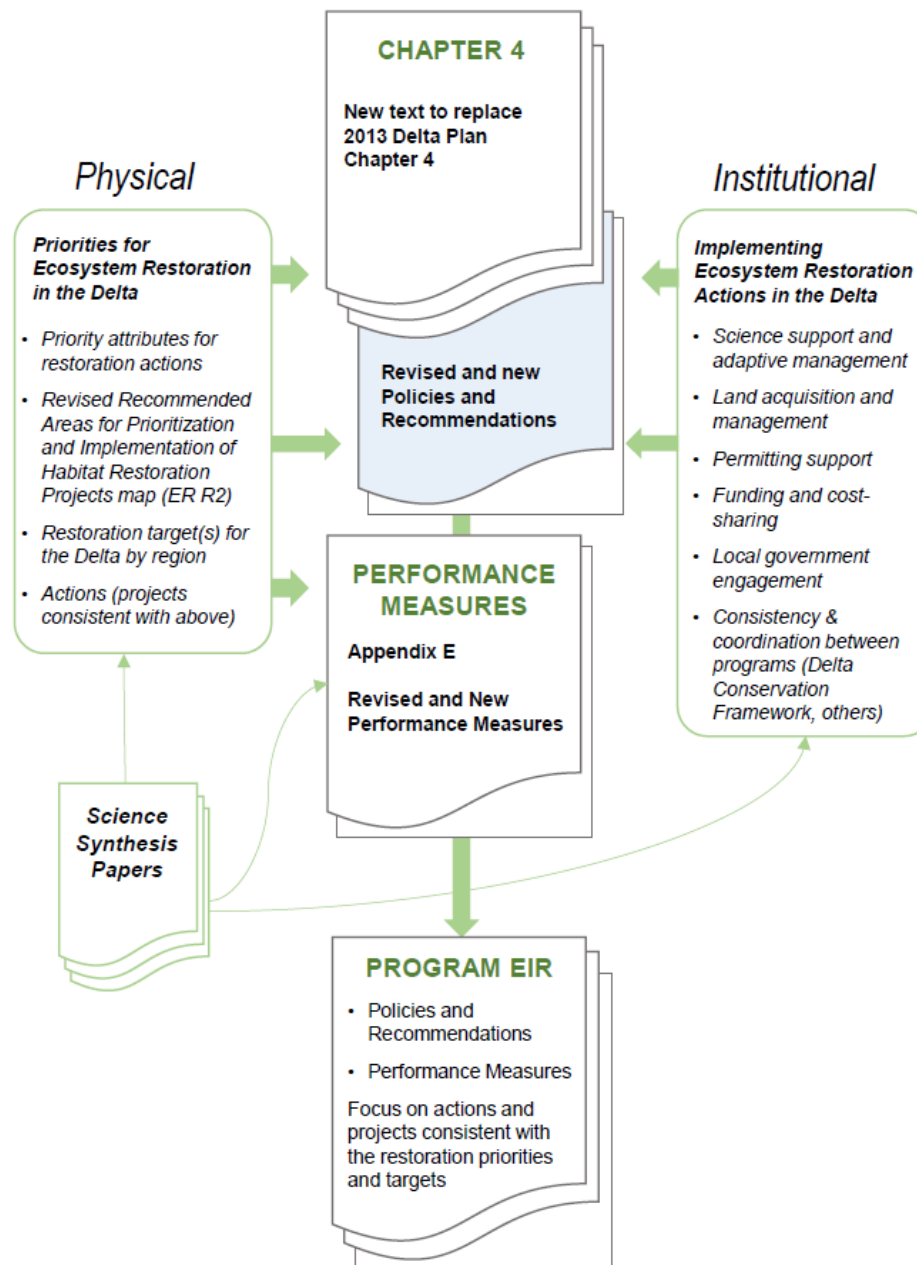
- *Native species, including algae and other plants, invertebrates, fish, birds, and other wildlife, are self-sustaining and persistent.*
- *The tidal channels and bays in the Delta and Suisun Marsh connect with freshwater creeks, upland grasslands, and woodlands.*
- *The Sacramento and San Joaquin Rivers and Delta tributaries include reaches where streams are free to meander and connect seasonally to floodplains...*
- *Habitats for resident and rearing migratory fish, birds, and upland wildlife are connected by migratory corridors...*

Delta Plan: Chapter 4 Vision

The Council envisions a future in which the Delta ecosystem has the following characteristics (cont'd):

- *More natural variations in water flows and conditions make aquatic habitats, tidal marshes, and floodplains more dynamic, encourage survival of native species, and resist invasions by weeds and animal pests.*
- *The ecosystem is resilient enough to absorb and adapt to current and future effects of multiple stressors...*
- *The Delta will provide more reliable water supplies...*
- *Californians recognize and celebrate the Delta's unique natural resource values...*

Amendment Blueprint

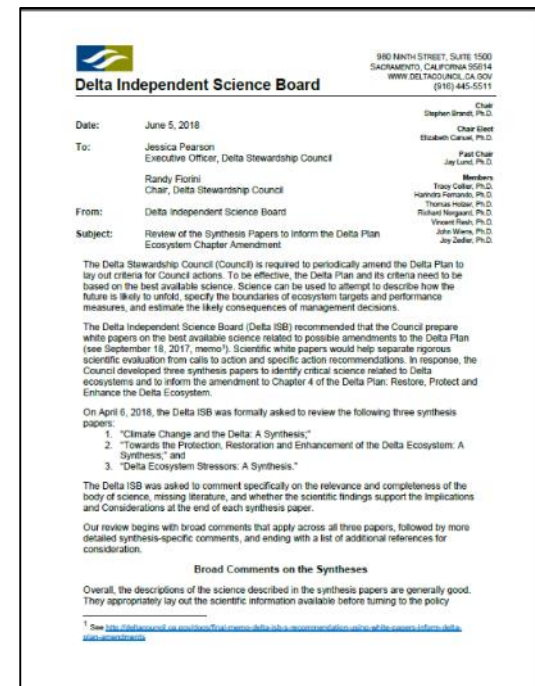


Stakeholder Consultation



- Listening Sessions
- Open House
- Briefings and Outreach
- Interagency Committee Meetings
- DPIIC Meetings
- Council Meetings

Best Available Science



Timeline to Date

- **September to November 2017:** Listening sessions and outreach
- **October 2017:** Presentation to Council on Scope
- **February 2018:** Presentation to Council on Synthesis Papers and Public Workshop in Clarksburg
- **March 2018:** Release of Science Synthesis Papers
- **May 2018:** Presentation to Council on EcoAmendment objectives
- **July 2018:** Presentation to Council on “Blueprint”
- **August/September 2018:** Presentation to Council on Restoration Approach
- **November 2018:** Presentation to Council on Institutional Framework
- **March/April 2019:** Consultation with State agency partners

Preliminary Core Strategies

1. Create More Natural Functional Flows
2. Restore Ecosystem Function
3. Protect Land for Restoration and Safeguard Against Land Loss
4. Protect Native Species and Reduce the Impact of Nonnative Species
5. Improve Institutional Coordination to Support Implementation

Preliminary Core Strategy 1: Create More Natural Functional Flows

Problem Statement

- Flows into, through, and out of the Delta are highly altered
- Altered flows stress native species and strain the ecosystem
- Flow objectives must balance a variety of beneficial uses

Core Strategy

- Allocate flows to more closely resemble natural volume, timing, frequency and duration
- Adaptively manage flows

CORE STRATEGIES	POLICIES	RECOMMENDATIONS
Core Strategy 1: Create More Natural Functional Flows		
Implement and Regularly Update Flow Guidance	✓ ER P1. Delta Flow Objectives	 ER R1. Update Delta Flow Objectives

Key:  No Change  Modified  New  Removed

Preliminary Core Strategy 1:

Create More Natural Functional Flows



ER P1. Delta Flow Objectives

The State Water Resources Control Board (SWRCB) Bay Delta Water Quality Control Plan flow objectives shall be used to determine consistency with the Delta Plan. If and when the flow objectives are revised by the State Water Resources Control Board, the revised flow objectives shall be used to determine consistency with the Delta Plan.



ER R1. Update Delta Flow Objectives

The SWRCB should maintain a regular schedule of reviews of flow objectives to reflect changing conditions due to climate change. The SWRCB should consult with the Delta Science Program on adaptive management and the use of best available science.

Key:



No Change



Modified



New



Removed








Preliminary Core Strategy 2: Restore Ecosystem Function

Problem Statement

- The Delta ecosystem is highly degraded. Restoring the Delta ecosystem requires reestablishing more than 70,000 acres of functional, diverse and interconnected habitat.

Core Strategy

- Support and facilitate restoration projects with priority attributes
- Access new funding sources to implement large-scale restoration
- Ensure that restoration projects support ecosystem function under changing climate conditions
- Demonstrate that ecosystem restoration benefits society

CORE STRATEGIES	POLICIES	RECOMMENDATIONS
Core Strategy 2: Restore Ecosystem Function		
Improve Project Design	 ER P "A". Disclose Contributions to Restoring Ecosystem Function and Providing Social Benefits	 ER R "A". Increase Public Funding for Restoring Ecosystem Function
	 ER P4. Expand Floodplains and Riparian Habitats in Levee Projects	 ER R "B". Use Good Neighbor Checklist to Coordinate Restoration with Adjacent Uses
		 ER R2. Prioritize and Implement Projects that Restore Delta Habitat
		 ER R3. Complete and Implement Delta Conservancy Strategic Plan
		 ER R4. Exempt Delta Levees from the U.S. Army Corps of Engineers' Vegetation Policy

Preliminary Core Strategy 2: Restore Ecosystem Function*



New ER Policy “A”. Disclose Contributions to Restoring Ecosystem Function and Providing Social Benefits

- a) For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, this policy applies to a covered action that consists of or includes components of environmental protection, enhancement, restoration, or mitigation.*
- b) The certification of consistency for a covered actions described in Subsection (a) shall use the guidance and Disclosure Form contained in Appendix 2 to,*
 - 1. Disclose priority attributes that contribute to restoration of a resilient, functioning Delta ecosystem.*
 - 2. Identify the Ecosystem Restoration Tier associated with the covered action based on the priority attributes identified pursuant to Subsection (b)(1).*
 - 3. Disclose the cultural, recreational, and/or natural resource benefits anticipated to result from project implementation.*

Preliminary Core Strategy 2: Restore Ecosystem Function



ER P4. Expand Floodplains and Riparian Habitats in Levee Projects

- a) Certifications of consistency for levee projects must provide an evaluation of, and where feasible the levee project must incorporate, alternatives to increase floodplains and riparian habitats.*
 - 1. Evaluation of setback levees in the Delta shall be required only in the following areas (shown in [ER P4 policy map]).... For the purposes of this policy, setback levees are those which remove all or a portion of the original levee prism in order to physically expand the width of the channel.*
 - 2. Evaluation of alternatives to increase levee waterside habitat shall be required for all levee projects in the Delta.*
- b) For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, this policy covers levee improvement and levee rehabilitation projects, as well as a proposed action to construct new levees.*

Preliminary ER P4 Map Revision

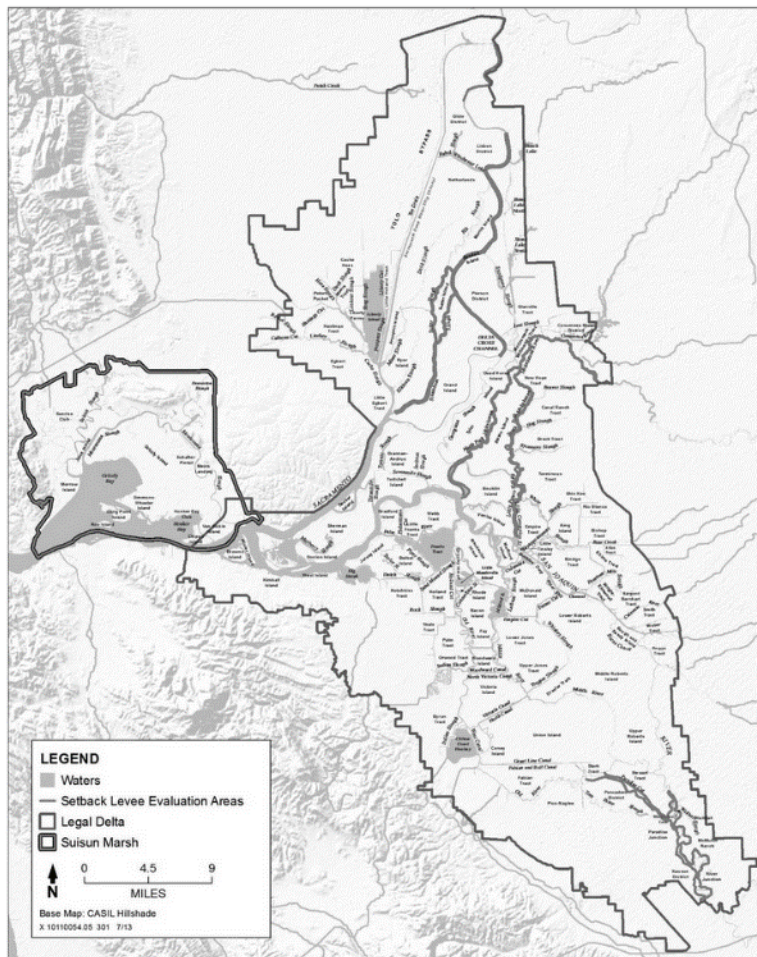


Figure 8-1
Setback Levee Evaluation Areas

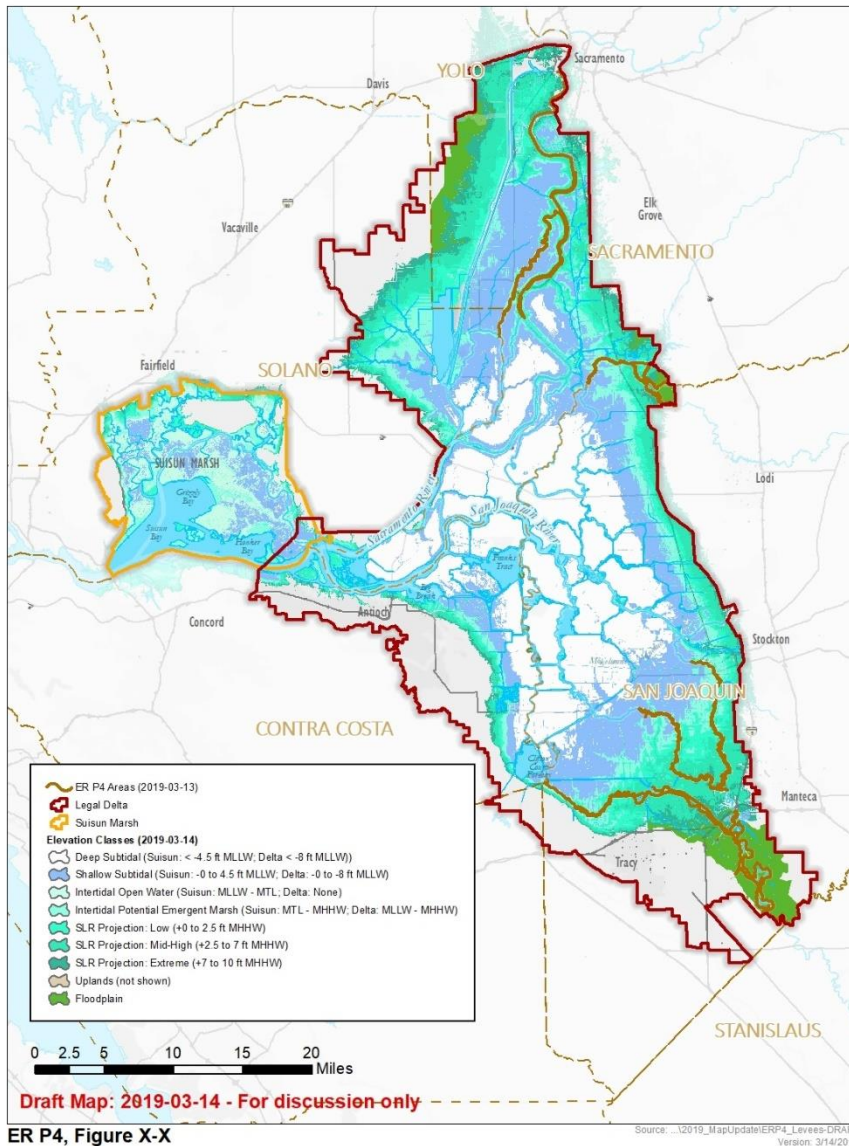
Existing ER P4 Policy Map

“Evaluation of setback levees in the Delta shall be required only in the following areas...”

Preliminary ER P4 Map Revision

Preliminary Revised ER P4 Policy Map

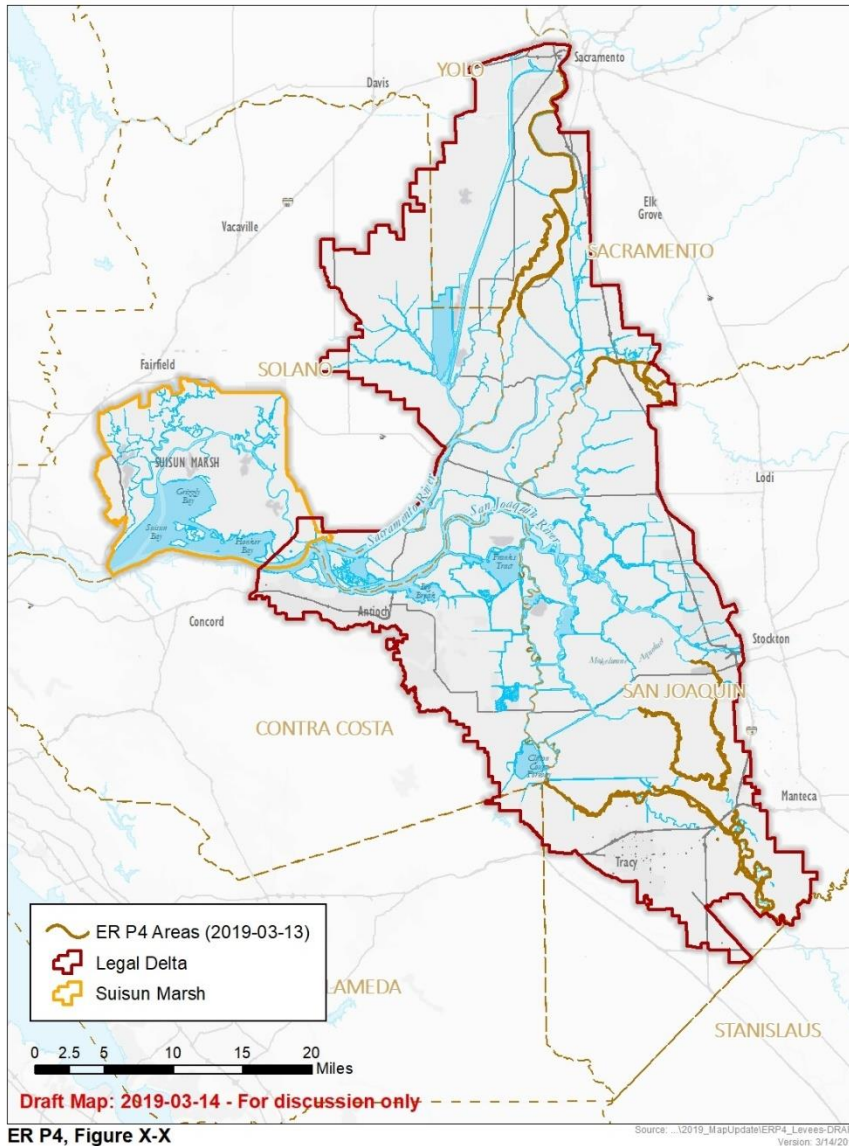
Would adjust designated levee segments upstream to account for new elevation information.



Preliminary ER P4 Map Revision

Preliminary Revised ER P4 Policy Map

Would adjust designated levee segments upstream to account for new elevation information.



Preliminary Core Strategy 2: Restore Ecosystem Function



New ER Recommendation “A”. Increase Public Funding for Restoring Ecosystem Function

New funding sources are needed to achieve the scale of ecosystem restoration envisioned by the Delta Reform Act. Future State funding opportunities for implementing restoration projects in the Delta, including grant and loan programs, should be directed to projects that would achieve Ecosystem Restoration Tier 1 or 2, as defined in Appendix 2.



New ER Recommendation “B”. Use Good Neighbor Checklist to Coordinate Restoration with Adjacent Uses

Restoration project managers should use the Department of Water Resources’ Good Neighbor Checklist when planning and designing restoration projects adjacent to agricultural land uses.



ER R4. Exempt Delta Levees from the U.S. Army Corps of Engineers Vegetation Policy

Key:



No Change



Modified



New



Removed






Preliminary Core Strategy 3: Protect Land for Restoration and Safeguard Against Land Loss

Problem Statements

- Sea level rise and development reduce opportunities to restore ecosystem function
- Subsidence threatens the vision for a restored Delta ecosystem

Core Strategy

- Protect opportunities for restoration, and account for sea level rise in restoration actions
- Fund actions and manage land to halt and reverse subsidence

CORE STRATEGIES	POLICIES	RECOMMENDATIONS
Core Strategy 3: Protect Land for Restoration and Safeguard Against Land Loss		
Protect Opportunities for Restoration	 ER P2. Restore Habitats at Appropriate Elevations	✓ ER R5. Update the Suisun Marsh Protection Plan
	 ER P3. Protect Opportunities to Restore Habitat	
Safeguard Against Land Loss		 ER R "C". Fund Targeted Subsidence Reversal Actions
		 ER R "D". Enhance Working Landscapes through Resource Conservation Districts
		 ER R "E". Develop and Update Management Plans to Halt or Reverse Subsidence on Public Lands

Preliminary Core Strategy 3: Protect Land for Restoration and Safeguard Against Land Loss



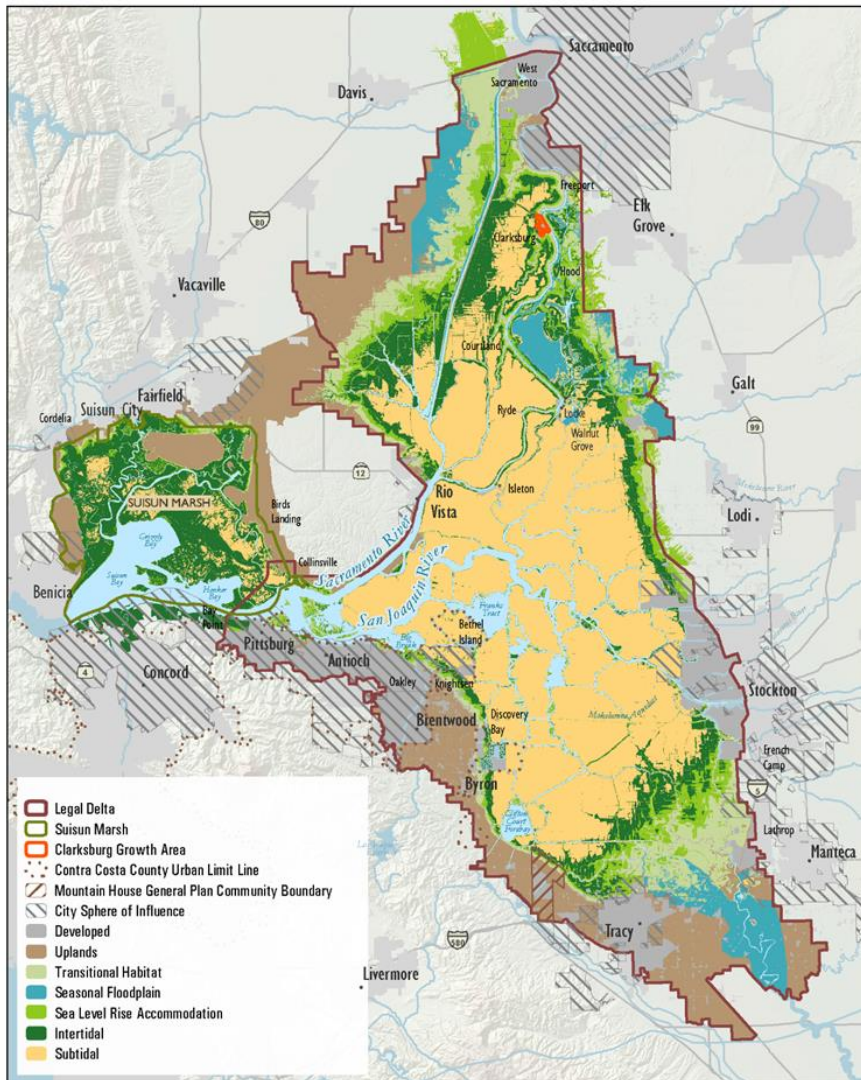
ER P2. Restore Habitats at Appropriate Elevations

- (a) For purposes of Water Code section 85057.5(a)(3) and Section 5001(j)(1)(E) of this Chapter, this policy applies to a covered action that includes environmental protection, enhancement, restoration, or mitigation.*
- (b) The covered actions defined in Subsection (a) must be carried out in a manner consistent with Appendix 2, Section 1, which provides guidance on appropriate elevations for particular ecosystem types within the Sacramento-San Joaquin Delta and Suisun Marsh. The elevation map (Appendix 2, Map 1) shall be used in combination with Appendix 2 to determine the appropriate ecosystem improvement action based on an area's elevation.*
- (c) If a covered action, as defined in Subsection (a), is not consistent with the elevation map (Appendix 2, Map 1), the proposal shall provide the rationale for any inconsistency based on best available science.*

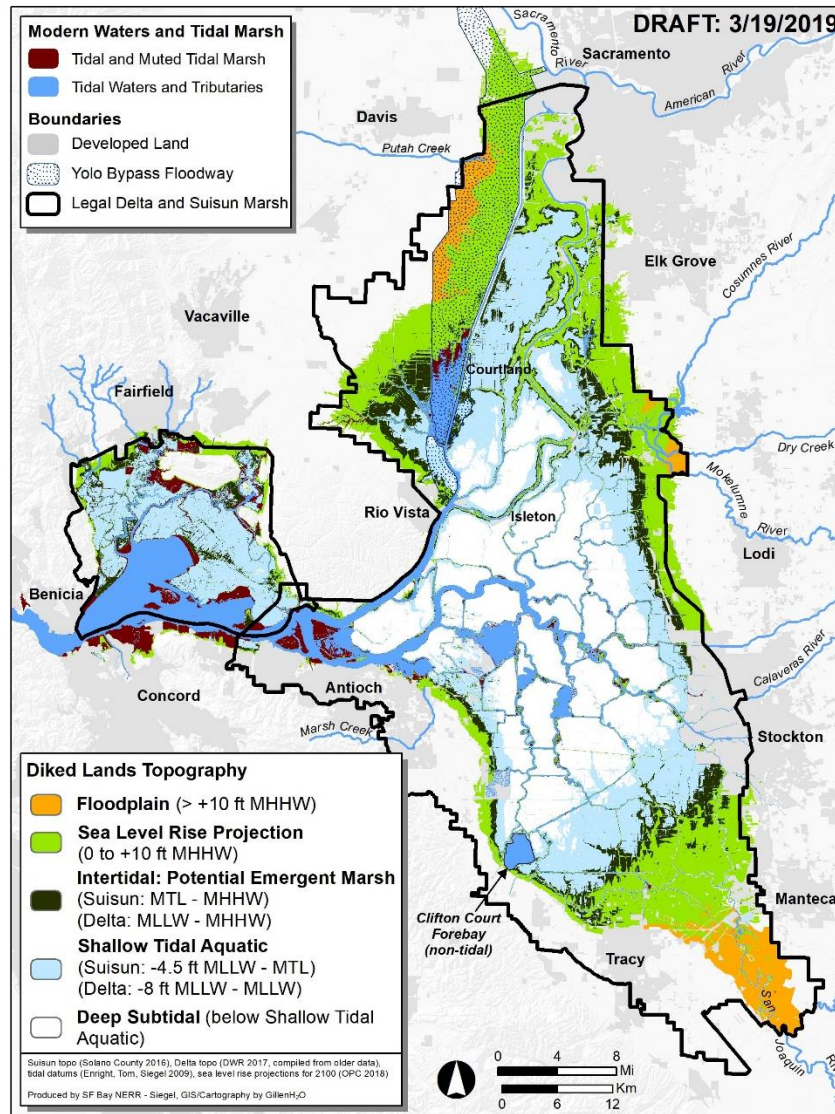
Preliminary ER P2 Map Revision

Existing ER P2 Policy Map

Accounts for tidal range projections with sea level rise



Preliminary ER P2 Map Revision



Preliminary Revised ER P2 Policy Map

Would account for:

- more recent, high-resolution elevation data
- updated tidal range projections with sea level rise

Land subsidence and current sea level rise projections have shifted and reduced lands appropriate for tidal marsh restoration.

Agenda Item 5

Preliminary ER P2 Guidance (Appendix 2)

Elevation band	Description	Suitable Conservation Actions
Floodplain	Hydrologically connected floodplains and bypass areas	Floodplain restoration
Upland	Above anticipated future high tide levels, and not within a floodplain	Restoration of upland habitats
Sea Level Rise Accommodation	Sea level rise up to 10 feet above mean higher high water levels (MHHW)	Restoration of upland habitats or creating migration or accommodation space for intertidal restoration
Intertidal Emergent	Area between mean lower low water level (MLLW) and MHHW	Hydrologically-connected wetland restoration
Subsidence Reversal	Up to 8 feet below MLLW in the Delta, up to 4.5 feet below MLLW in Suisun Marsh	Subsidence reversal with the intention of future tidal reconnection, and shallow subtidal restoration
Deep Subtidal	Below 8 feet below MLLW in the Delta, 4.5 feet below MLLW in Suisun Marsh	Managed wetlands, carbon sequestration

Preliminary Core Strategy 3: Protect Land for Restoration and Safeguard Against Land Loss



ER P3. Protect Opportunities to Restore Habitat

- (a) Within the priority habitat restoration areas depicted in [ER P3 policy map], significant adverse impacts to the opportunity to restore habitat as described in section 5006 of this Chapter [ER P2], must be avoided or mitigated.*
- (b) Impacts referenced in subsection (a) will be deemed to be avoided or mitigated if the project is designed and implemented so that it will not preclude or otherwise interfere with the ability to restore habitat as described in section 5006 of this Chapter.*
- (c) If the impacts referenced in subsection (a) are mitigated (rather than avoided), they must be mitigated to the extent that the project has no significant impact on the opportunity to restore habitat as described in section 5006 of this Chapter.*
- (d) For purposes of Water Code section 85057.5(a)(3) and section 5001(j)(1)(E) of this Chapter, this policy covers proposed actions in the priority habitat restoration areas depicted in [ER P3 policy map]. It does not cover proposed actions outside those areas.*

Preliminary Core Strategy 3: Protect Land for Restoration and Safeguard Against Land Loss



ER R5. Update the Suisun Marsh Protection Plan



New ER Recommendation “C”. Fund Targeted Subsidence Reversal Actions



New ER Recommendation “D”. Enhance Working Landscapes Through Resource Conservation Districts*



New ER Recommendation “E”. Develop and Update Management Plans to Halt or Reverse Subsidence on Public Lands






Preliminary Core Strategy 4: Protect Native Species and Reduce the Impact of Nonnative Species

Problem Statement

- The survival, health and distribution of native Delta species is affected by spread of nonnative species
- Fish survival is impaired by migration barriers and unscreened diversions

Core Strategy

- Prevent introduction of, and implement actions to control nonnatives
- Improve fish migration and survival

CORE STRATEGIES	POLICIES	RECOMMENDATIONS
Core Strategy 4: Protect Native Species and Reduce the Impact of Non-native Species		
Prevent Introduction of Nonnative Species and Manage Nonnative Species Impacts	✓ ER P5. Avoid Introductions of and Habitat Improvements for Invasive Nonnative Species	 ER R6. Regulate Angling for Nonnative Sport Fish to Protect Native Fish
		 ER R7. Prioritize and Implement Actions to Control Nonnative Invasive Species
Improve Fisheries Management		 ER R "H". Improve Fish Migration within the Delta and Sacramento-San Joaquin Watershed
		 ER R "I". Fund Projects to Improve Survival of Juvenile Salmon
		✓ ER R8. Manage Hatcheries to Reduce Genetic Risk
		 ER R9. Coordinate Acoustic Telemetry Program

Preliminary Core Strategy 4: Protect Native Species and Reduce the Impact of Nonnative Species

✓ **ER P5. Avoid Introductions of and Habitat Improvements for Invasive Nonnative Species**

 **ER R7. Prioritize and Implement Actions to Control Nonnative Invasive Species**

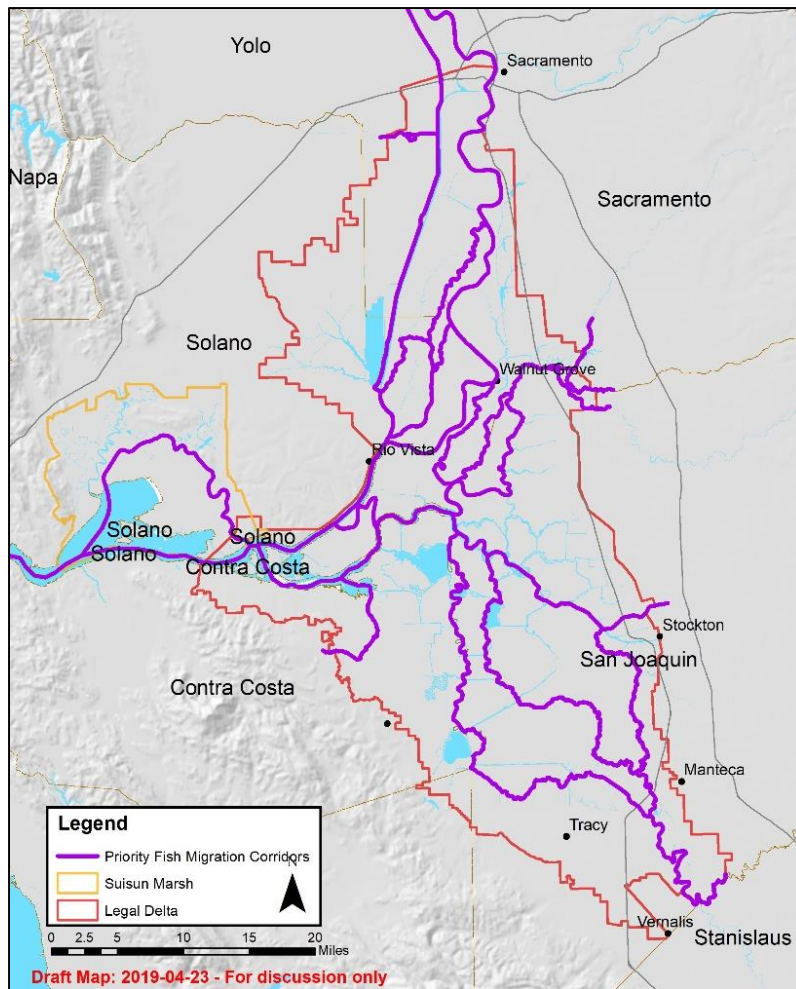
 **New ER Recommendation “H”. Improve Fish Migration within the Delta and Sacramento-San Joaquin Watershed**

 **New ER Recommendation “I”. Fund Projects to Improve Survival of Juvenile Salmon (MAP)**

✓ **ER R8. Manage Hatcheries to Reduce Genetic Risk**

 **ER R9. Coordinate Acoustic Telemetry Program**

Preliminary ER R “I” Map



Preliminary ER R “I” Policy Map

Would identify priority fish migration corridors

Preliminary Core Strategy 5: Improve Institutional Coordination to Support Implementation

Problem Statement

- There is an ongoing need to better coordinate restoration plans and actions among a broad array of federal, state and local entities

Core Strategy

- Commit to a single, consolidated restoration forum with agency support and discretion to guide restoration strategies, plan investments, align actions, and resolve barriers to implementation

CORE STRATEGIES	POLICIES	RECOMMENDATIONS
Core Strategy 5: Improve Institutional Coordination to Support Implementation		
Increase Interagency Coordination and Support for Restoration Projects		 ER R “F” Support Implementation of Ecosystem Restoration
		 ER R “G” Align State Restoration Plans and Conservation Strategies with the Delta Plan

Preliminary Core Strategy 5:

Improve Institutional Coordination to Support Implementation



New ER Recommendation “F”. Support Implementation of Ecosystem Restoration

Local, State and federal agencies should coordinate to support implementation of ecosystem restoration, and the Delta Plan Interagency Implementation Committee (DPIIC) should consider establishing a restoration subcommittee to:

- (a) Develop strategies for acquisition and long-term ownership and management of lands...*
- (b) Develop a funding strategy... remove institutional barriers and fund Tier 1 or 2 actions within the Delta.*
- (c) Establish program-level endangered species permitting mechanisms...*
- (d) Coordinate with the Delta Science Program to align State, federal, and local resources for scientific support...*
- (e) Develop a landscape-scale strategy for recreational access to existing and future restoration sites, where appropriate and while maintaining ecological value.*

Preliminary Core Strategy 5:

Improve Institutional Coordination to Support Implementation

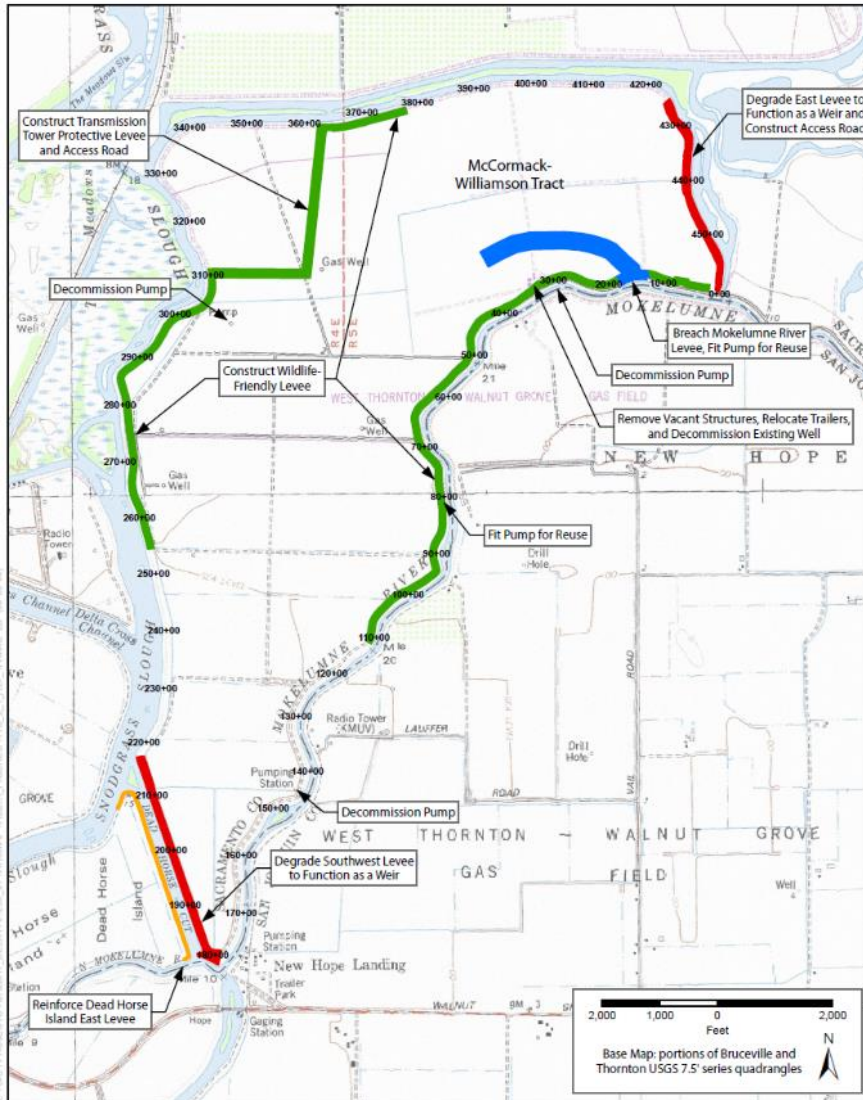


New ER Recommendation “G”. Align State Restoration Plans and Conservation Strategies with the Delta Plan

Agencies should coordinate, and the Delta Plan Interagency Implementation Committee (DPIIC) should consider establishing a restoration subcommittee, to align State, local, or regional restoration strategies, plans or programs in the Delta to be consistent with the common and priority attributes described in Appendix 2. These include:

- (a) The Delta Conservation Framework;*
- (b) The CVFPP Conservation Strategy;*
- (c) The Public Lands Strategy;*
- (d) Regional Conservation Investment Strategies; and*
- (e) Regional Conservation Strategies or Partnerships.*





Example Covered Action



Grizzly Slough Floodplain Restoration Project and McCormack-Williamson Tract Restoration Project (North Delta Project)

Certification of Consistency
Filed on October 26, 2018

Summary of Preliminary Policy Requirements Related to Covered Actions

- ✓ Require projects use of Bay Delta Water Quality Control Plan to determine consistency with the Delta Plan (**ER P1**)
-  Require habitats to be restored at appropriate elevations for current and future conditions (account for rising sea levels) (**ER P2**)
-  Require protection for land with the best opportunities for habitat from incompatible uses (**ER P3**)
-  Require expanded flood plains and creation of riparian habitat in levee projects (**ER P4**)
- ✓ Require projects to avoid introducing and, for habitat restoration projects, to avoid supporting non-native invasive species (**ER P5**)
-  Require projects to consider and disclose how they would improve ecosystem functionality and provide social benefits (**ER P “A”**)

ER Policies Related to Example Covered Action

✓ **ER P1** – Delta Flow Objectives

Certification identified not applicable

No recommended change to policy



ER P2 – Restore Habitats at Appropriate Elevations

Certification identified consistent with ER P2 (located at elevation appropriate for wetland restoration)

Site location is identified as intertidal on both existing and preliminary new elevation maps



ER P3 – Protect Opportunities to Restore Habitat

Certification identified consistent with ER P3 (part of overall restoration strategy for North Delta)

Site location is identified as part of Mokelumne-Cosumnes Confluence PHRA – no change to PHRA map proposed

ER Policies Related to Example Covered Action



ER P4 – Expand Floodplains and Riparian Habitats in Levee Projects

Certification identified not applicable (not a levee rehab or construction project)

Would be similar under preliminary revised policy



ER P5 – Avoid Introductions of and Habitat for Invasive Nonnative Species

Certification identified consistent with ER P5 (adaptive management and vegetation plantings)

No recommended change to policy



Preliminary ER Policy “A” Related to Example Covered Action: Appendix 2 Guidance

Priority Attributes		McCormack-Williamson Tract Project Attributes
①	Restore Geomorphic Processes	Floodplain inundation during wet season, natural sedimentation and channel formation
②	Be Large-Scale	1,500 acre site, > 197 acres would be seasonally inundated
③	Improve Connectivity	Restore hydrologic connectivity
④	Increase Native Vegetation Cover	Restoration of riparian forest, planting of native grasses
⑤	Contribute to the Recovery of Natural Communities/Species	Floodplain habitat will benefit fish that spawn and rear in floodplains and will support native avian species

NEW Preliminary ER Policy “A” Related to Example
Covered Action: Appendix 2 Guidance

**Priority
Attributes**

- ① Restore Geomorphic Processes
- ② Be Large-Scale
- ③ Improve Connectivity
- ④ Increase Native Vegetation Cover
- ⑤ Contribute to the Recovery of Natural Communities/Species

=

**Ecosystem
Restoration
Tier 1**



Preliminary ER Policy “A” Related to Example Covered Action: Appendix 2 Guidance

Categories of Social Benefits

McCormack-Williamson Tract Benefits

Cultural Values

- Flood protection for adjacent agriculture
- Subsidence reversal

Recreation Values

- Recreation access, trails

Natural Resource Values

- Natural and beneficial function of floodplains
- Accommodation space for future sea level rise, tidal marsh migration
- Restoring fisheries

Discussion

- Should the Ecosystem Amendment project description include any of the identified alternatives in place of the preliminary policy or recommendation language in **Attachment 1**?
 - Are there other alternative approaches that should be considered?
- What are Councilmembers' thoughts about the preliminary approach to Core Strategies 2, 3, and 5?
 - **Core Strategy 2 “Restore Ecosystem Function”** relies primarily on the covered action process to implement regulatory policies.
 - **Core Strategy 3 “Protect Land for Restoration and Safeguard Against Land Loss”** relies on the covered action process to implement regulatory policies, and DPIIC to implement recommendations.
 - **Core Strategy 5 “Improve Institutional Coordination to Support Implementation”** relies primarily on DPIIC to implement recommendations.

Next Steps

- **June 2019:** Staff presentation at Council Meeting of the preliminary Draft Chapter 4 Amendment including proposed narrative, policies and recommendations, performance measures, and appendices.
- **June/July 2019:** Public review period for preliminary Draft Chapter 4 Amendment.
- **Fall 2019:** Council reviews changes to preliminary Draft Chapter 4 Amendment from June Council Meeting and public review period, and considers endorsing the draft Ecosystem Amendment as the proposed project description for purposes of environmental review pursuant to CEQA. Staff releases Notice of Preparation and initiates CEQA scoping meetings.
- **Fall 2020:** Anticipated certification of CEQA document and final approval of the Ecosystem Amendment.